

ABSTRACT

An lens assembly has a having a height TT and a focal length f0 and three lens elements with first and second surfaces, the first surface of each element facing the object. The first lens element has a positive power and a focal length f1. The second lens element 20 is a aspheric lens, the first surface being concave and facing the first lens element second surface. The second lens element second surface being an aspheric surface. The third lens element first surface is convex having a radius of r1 and the second surface having a radius r2 with $|r2|>|r1|$. The first, second and third lens elements are shaped are formed to obtain a ratio of f1/f0 in the range of 0.5 to 2.0 and a TT/DI<1.5. The elements are formed and spaced to obtain an image with a maximum effective dimension DI on an image plane in a digital camera.